

Amendments to the Specification

After page 5, line 20, add the following new paragraph:

FIG. 5 is a schematic cross-sectional view of a sputtering reacting including an RF coil and an auxiliary magnet array of the invention.

Paragraph at page 10, lines 1-9:

Although the invention has been described for use in an SIP sputter reactor, the auxiliary permanent magnet array can be advantageously applied to other target and power configurations such as the annularly vaulted target of the SIP⁺ reactor of US Patent 6,251,242, the hollow cathode target of US Patent 6,179,973, or the inductively coupled IMP reactor of US Patent 6,045,547. An IMP reactor 100, schematically illustrated in cross section in FIG. 5, additionally includes an RF power source 102 powering an RF inductive coil 104 wrapped around the processing space between the target 16 and the wafer 24 to couple RF energy in the megahertz frequency range into the processing space. The RF energy generates an axial RF magnetic field in the plasma, which in turn generates a circumferential electric field at the edges of the plasma, thereby coupling energy into the plasma in a region remote from the wafer and increasing its density and hence increasing the metal ionization rate. Other magnetron configurations may be used, such as balanced magnetrons and stationery ones. Further, the polarity of the auxiliary magnets may be parallel or anti-parallel to the magnetic polarity of the outer pole of the top magnetron. Other materials may be sputtered including Al, Ta, Ti, Co, W etc. and the nitrides of several of these which are refractory metals.